

REMARKS/ARGUMENTS

In response to the Office Action mailed from the United States Patent and Trademark Office on January 13, 2011, Applicant responds to the issues raised in the Office Action in the order presented in the Office Action. Claims 2, 4, and 48 are cancelled. Claims 1, 3, 5-47 and 49-58 are pending. Claims 11-46 and 53-58 have been withdrawn from consideration. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter; claims 1 and 47 are objected to because of informalities; Claims 1, 3, 5-10, 47 and 49-52 were rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement; Claims 1, 3, 5-7, 9, 10, 47, 50 and 51 were rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al (US 2,403,608) in view of Richards (US 4,335,733), Jandrasi et al. (US 4,531,539) and Bryant (US 2,950,897); Claims 1, 3, 5-8, 47 and 49-52 were rejected under 35 U.S.C. 103(a) as being unpatentable over Payne in view of Fortune (US 3,367,625) and Jandrasi; and Claims 9 and 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Payne in view of Fortune and Jandrasi et al., as applied to Claim 1 above, and further in view of Richards (US 4,335,733). Accordingly, Applicant provides the following:

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. In particular, the pending Action indicates that the specification is void of disclosure related to "a plate located inside one of said upper bonnet and said lower bonnet, wherein the plate comprises a planar surface structured to contact the surface of the blind," as recited in claim 1 and claim 47. Applicant respectfully notes that the specification as originally filed supports a planar surface structured to contact the surface of the blind located within one of an upper bonnet and lower bonnet. A non-limiting example of a planar surface structure to contact the surface of the blind located within a bonnet is depicted in Figure 11, which illustrates a blind in a partially open position. The nose of the blind extends beyond the coke drum orifice and is in contact with a seat system. The seat system comprises a planar surface that extends into the bonnet. The plate inside the bonnet comprises a planar surface structured to contact the surface of the blind. Additionally, page 13 line 21- page 14 line 2 provide, "[t]he present invention coke drum de-header system further comprises an internal coke containment system

that provides or maintains total isolation of the coke within the system. The internal coke containment system comprises the metal to metal contact seal described herein, as well as a unique component configuration existing within the bonnets of the de-header valve.” Further, claim 10 of the originally filed application recited “[t]he coke drum de-header system of claim 1, further comprising an internal material isolation and containment system.” Finally Applicant has amended the specification to recite the structural elements disclosed in original Figure 11. No new matter has been added.

Accordingly, Applicant respectfully submits that the specification as originally filed contained disclosure related to a plate located inside a bonnet, wherein the plate comprises a planar surface structured to contact the surface of the blind, and the amended specification clearly delineates the structures disclosed and claimed in originally filed Figure 11 and claim 10 respectively. Accordingly, Applicant respectfully requests that the rejection to the specification be withdrawn at this time.

Rejections under 35 USC § 112:

Claims 1, 3, 5-10, 47, 49-52 stand rejected under 35 U.S.C. first paragraph as failing to comply with the written description requirement. The pending Action indicates that the claims contain subject matter which was not described in the specification in such a way to reasonably convey to one skill in the relevant art that the inventors, at the time that the application was filed, had possession of the claimed invention. In particular, the pending Action indicates that Claims 1 and 47 recite the feature, “a plate located inside one of said upper bonnet and said lower bonnet, wherein the plate comprises a planar surface structured to contact the surface of the blind,” and that this feature does not appear to be supported in the originally filed disclosure.

There is a strong presumption that an adequate written description of the claimed invention is present when the application is filed. *In re Wertheim*, 541 F.2d 257, 263, 191 USPQ 90, 97 (CCPA 1976). Further, M.P.E.P. § 2163 indicates that there is no *in haec verba* requirement, and that it is sufficient for claim limitations to be supported through “express, implicit, or inherent disclosure.” Thus, as set forth in M.P.E.P. § 2163, the requirement is satisfied if the patent specification describes the claimed invention “in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed

invention.” Applicant respectfully submits that the rejected claim language satisfies this requirement.

As noted above, Figure 11 depicts two parallel plates, which sandwich the valve closure on the left side of the Figure. Figure 11 depicts bonnets bolted to the main body of the valve. The plates which sandwich the distal end of the valve closure in figure 11 extend from the seat systems, of the main body of the valve through the coupling of the main body and the bonnets and into the upper and lower chambers interior to the bonnet itself. .” Further, claim 10 of the originally filed application recited “[t]he coke drum de-header system of claim 1, further comprising an internal material isolation and containment system.” Finally Applicant has amended the specification to recite the structural elements disclosed in original Figure 11. No new matter has been added. Accordingly, Applicant respectfully requests that the Section 112, first paragraph, rejection be withdrawn at this time.

Rejections under 35 U.S.C. § 103(a):

Claims 1, 3, 5-7, 9, 10, 47, 50 and 51 stand rejected as being unpatentable over Payne in view of Richards, Jandrasi and Bryant; claims 1, 3, 5-8, 47 and 49-52 stand rejected as being unpatentable over Payne in view of Fortune and Jandrasi; and claims 9 and 10 stand rejected as being unpatentable over Payne in view of Fortune and Jandrasi in further view of Richards. Applicant respectfully submits that the references cited in the Office Action neither alone or in combination with each other do not teach their source suggest the claim limitation the present of the claim set provided herein. Likewise, the references fail to clearly and particularly suggest the alleged obvious combination alleged by the examiner. M.P.E.P. Section 2141.

Applicant respectfully submits that the cited references either alone or in combination do not teach or suggest all the limitations claimed in the claim set provided herein and there is not a satisfactory showing that one of ordinary skill in the art would take the art teachings to overcome the identified differences under *Graham* between the claimed invention and the teachings in the prior art. Accordingly, Applicant respectfully submits that the claimed art does not teach every aspect of the claims as provided here in and therefore does not render the claims obvious.

Each of Payne, Richards, and Fortune are silent as to a coke drum deheading system comprising an upper bonnet coupled to the main body; a lower bonnet coupled to the main body; an internal coke containment system structured to maintain total isolation of the coke within the

system comprising a plate located inside one of said upper bonnet and said lower bonnet, wherein the plate comprises a planar surface structured to contact the surface of the valve closure forming a metal to metal contact seal, and a continuously maintained metal to metal contact seal between said valve closure and said at least one live loaded upper seat which is structurally contiguous with the internal coke containment system, wherein said live loaded upper seat is structured to move axially while said valve closure is actuated between the open and the closed position to accommodate surface variance on the valve closure, said contact seal shearing accumulated coke and effectively de-heading said coke drum upon actuation of said valve closure. Accordingly, Payne, Richards and Fortune taken alone or in combination fail to disclose a valve capable of operating at the bottom of the coke drum.

For this reason, the pending Action relies on the disclosure found in Jandrasi and Bryant to teach this claim feature. In particular, the pending Action indicates that Jandrasi's guide 32 as illustrated in figures 1A and discussed in column 1, lines 57-63 reads on "a plate comprising a planar surface structured to contact the surface, the blind." Additionally, the pending Action indicates that Bryant also teaches a valve comprising an upper bonnet and a lower bonnet, wherein a plate is located inside one of an upper bonnet and a lower bonnet, the plate comprising a planar surface structured to contact the surface of the valve closure.

Jandrasi discloses a notch and groove rail system for guiding one of the slides, not a planar surface to contact the surface of a blind. This relationship is illustrated clearly in Figure 4, where the notch and groove system guiding a slide is illustrated clearly. Because feature 32 disclosed by Jandrasi is not a large planar surface utilized to sandwich a valve closure, the disclosure in Jandrasi fails to teach or suggest internal coke containment system structured to maintain total isolation of the coke within the system comprising a plate located inside one of said upper bonnet and said lower bonnet, wherein the plate comprises a planar surface structured to contact the surface of the valve closure forming a metal to metal contact seal, and a continuously maintained metal to metal contact seal between said valve closure and said at least one live loaded upper seat which is structurally contiguous with the internal coke containment system.

Bryant disclose a guard means with turned flanges on their longitudinal edges for engaging the edges of the gate with vent openings provided in the guard plates as illustrated in Figure 1, to equalized the pressure in the body space 19 with pressure in the port 51. Col. 4 lines

46-58. Because feature Bryant discloses a system for protecting and guiding the gate comprising vent openings to maintain equalized pressure, the disclosure in Bryant fails to teach or suggest internal coke containment system structured to maintain total isolation of the coke within the system comprising a plate located inside one of said upper bonnet and said lower bonnet, wherein the plate comprises a planar surface structured to contact the surface of the valve closure forming a metal to metal contact seal, and a continuously maintained metal to metal contact seal between said valve closure and said at least one live loaded upper seat which is structurally contiguous with the internal coke containment system.

For at least these reasons, Applicant respectfully submits that the prior art references do not independently, or in combination, teach every aspect of the invention as claimed in the independent base claims.

In addition, the dependent claims place further limitations on otherwise allowable subject matter. Accordingly, Applicant respectfully submits the cited art does not teach every aspect to the claims as provided herein and therefore does not render the claims obvious as provided. Accordingly, Applicant respectfully requests that the Section 103 rejections be withdrawn at this time.

Regarding new claims 59-66 the present application is drawn to a coke drum deheading system comprising a seat support system structured to support a valve closure, wherein the seat support system comprises at least one live loaded upper seat, capable of maintaining continuous metal to metal contact between the valve closure and the at least one live loaded upper seat. The contact effectively allows shearing of accumulated coke and deheading of the coke drum upon actuation of the valve closure.

Richards' fails to teach a live loaded upper seat, wherein the live loaded upper seat structured to move axially while a valve closure is actuated between the open and the closed position, capable of maintaining continuous metal to metal contact between the valve closure and the at least one live loaded upper seat, effectively shearing accumulated coke and deheading a coke drum upon actuation. Rather, Richards discloses a valve for preventing the flow of abrasive fluids into the valve body from the process line. In particular, Richards discloses a valve closure comprising a lower cylindrical body member 24, having an extension 37 at its upper end, which is mounted to a so-called floating wear plate 38. See, FIGS. 6 and 9 of Richards. The wear plate 38 has an opening 39 aligned with the outlet chamber 28. The wear

plate 38 "floats" in the sense that it is free to move axially in the extension 37, but otherwise is stationary.

Richards' concept of "float" is distinct from the claimed concept of "live loaded." Richards "floating" wear plate 38 is held in a rigid axial position by pressurized fluid, while the "live loaded" seat of the present application is allowed to move axially while the valve is being opened and closed in order to continuously maintain the metal to metal contact seal between the valve closure and the at least one live loaded upper seat.

Richards' "floating" wear plate 38 utilizes a groove 41 formed in the "upper end of the cylindrical body member 24 to receive a loaded ring 42 that engages the lower side of the floating wear plate 38. See, FIGS. 6 and 9 of Richards. The passageway 43 in the member 24 communicates with the bottom of the groove 41 as is best shown in FIG.9. The loading ring 42 is actuated by fluid under pressure supplied to the passageway 43 through a conduit 43a." Emphasis added, Richards, column 4, line 50 to column 5, line 15.

Accordingly, Richards discloses a valve with a lower seat that may be actuated and held in a rigid axial position by pressurized fluids against the lower portion of a gate, not a live loaded seat capable of maintaining continuous metal to metal contact while a valve opens and closes. If pressurized, the fluid channel 43 is filled in and floating wear plate 38 is pressed against the valve closure. Under pressure the floating plate 38 is not capable of moving in an axial plane as a valve closure is opened. Accordingly, Richards' floating plate 38 cannot move axially while pressurized to accommodate variance in the surface of the valve closure.

By way of contradistinction, to accommodate surface variance on the valve closure the "live loaded" seat of the present application is structured to allow dynamic, axial movement of the seat while the valve closure is being moved from closed to open positions. As noted in the specification, the presently claimed valve is utilized in connection with a delayed coking process where molten hydrocarbon resid is fed into a coke drum, thermally cracked into light products and a solid residue referred to as coke. The solid, coal like, petroleum coke is then cut from the interior of the coke drum using high pressure, and allowed to fall through an open valve at the bottom of the coke drum. The molten resid is heated to thermal cracking temperatures, which range upwards of 1,000° F before being injected into the coke drum. The incoming product is injected into the drum and collides with the opposite side wall resulting in stark heat distribution variances between the vessel, lower spool and de-header valve. As the drum is being filled, a

large amount of liquid runs down the sides of the drum into a boiling turbulent pool at the bottom. A de-header valve must be designed to retain tons of molten coke and withstand mechanical stresses induced by the massive heat distribution variances (e.g., thermal ratcheting). Valve closure deformation is a common mechanical stress associated with thermal ratcheting. As a valve closure experiences massive heat distribution variances, it warps. Accordingly, the upper surface of a valve plate in a coking operation is uneven and the valve closure, particularly the upper seat of the valve closure must be capable of moving axially continually during opening and closing of the valve to maintain a continuous metal to metal contact seal between the valve closure and the at least one live loaded upper seat. Applying continuous hydraulic pressure, as disclosed by Richards, fails to teach a seat capable of flexing with the inconsistencies associated with a warped valve closure. Accordingly, Richards fails to disclose a valve capable of operating at the bottom of a coke drum.

Similar to Richards, Fortune fails to teach a live loaded upper seat, wherein the live loaded upper seat structured to move axially while a valve closure is actuated between the open and the closed position, capable of maintaining continuous metal to metal contact between the valve closure and the at least one live loaded upper seat, effectively shearing accumulated coke and deheading a coke drum upon actuation. Rather, Fortune discloses a surface 26 that abuts against the surface 27 of the seating and backing plate 24, when the annular reservoir 22 is pressurized. Fortune, Col. 4, lns 61-69; see FIG. 3. As discussed above in relation to Richards, the valve disclosed by Fortune is limited in operation by the hydraulic actuation of a valve seat. If pressurized, the annular reservoir 22 is filled and the floating seat is pressed against the valve closure. Under pressure the seat is not capable of moving in an axial plane as a valve closure is opened to accommodate variance in the surface of the valve closure. By way of contradistinction, to accommodate surface variance on the valve closure the "live loaded" seat of the present application is structured to allow dynamic axially movement of the seat while the valve closure is being moved from closes to open positions. Accordingly, Payne, Fortune and Richards taken alone or in combination fails to disclose a valve capable of operating at the bottom of a coke drum. For at least this reason, Applicant respectfully submits that the prior art references do not, independently or in combination, explicitly or impliedly teach every aspect of the invention as claimed in the independent base claims. In addition, the dependent claims place further limitations on otherwise allowable subject matter. Accordingly, Applicant respectfully submits


that the cited art does not teach every aspect of the claims as provided herein and therefore does not render the claims obvious as provided herein.

CONCLUSION

Applicant submits that the amendments made herein do not add new matter and that the claims are now in condition for allowance. Accordingly, Applicant requests favorable reconsideration. If the Examiner has any questions or concerns regarding this communication, the Examiner is invited to call the undersigned.

DATED this 13 day of April, 2011.

Respectfully submitted,


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